CASE A-31089A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF

CADE ET AL.

APPLICATION NO: TBA

FILED: On Even Date

Art Unit: TBA

Examiner: TBA

FOR: GENES ENCODING PROTEINS INVOLVED IN THE REGULATION OF SAR GENE EXPRESSION IN PLANTS

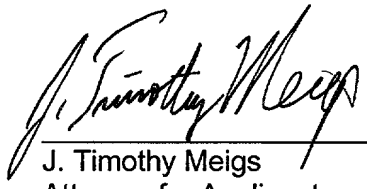
Commissioner for Patents
Washington, D.C. 20231

SUBMISSION OF SEQUENCE LISTING
INCLUDING STATEMENT OF VERIFICATION

Sir:

Applicants hereby provide a Computer Readable Form of the Sequence Listing as well as the Paper Copy thereof. The undersigned states that the Paper Copy and the Computer Readable Form, submitted in accordance with 37 CFR §1.821(c) and (e), respectively, are the same.

Respectfully submitted,



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SEQUENCE LISTING

<110> Cade, Rebecca M
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<120> GENES ENCODING PROTEINS INVOLVED IN THE REGULATION OF SAR GENE EXPRESSION IN PLANTS

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ggctaac atg aac aac tct ttg aag aaa gaa gaa cgc gta gaa gaa gat 109
Met Asn Asn Ser Leu Lys Lys Glu Glu Arg Val Glu Glu Asp
1 5 10

aac gga aaa tct gac ggt aac aga ggg aaa ccg tcg acg gaa gtt gtt 157
Asn Gly Lys Ser Asp Gly Asn Arg Gly Lys Pro Ser Thr Glu Val Val
15 20 25 30

cgg acg gta acg gag gaa gag gtg gat gag ttt ttc aag ata tta cgg 205
Arg Thr Val Thr Glu Glu Glu Val Asp Glu Phe Phe Lys Ile Leu Arg
35 40 45

aga gta cac gtg gcg aca cga acg gtt gcg aaa gtt aac ggc ggt gtt 253
Arg Val His Val Ala Thr Arg Thr Val Ala Lys Val Asn Gly Gly Val
50 55 60

gct gag gga gag tta ccg tct aag aag agg aaa cgg agt cag aat ctt 301
Ala Glu Gly Glu Leu Pro Ser Lys Lys Arg Lys Arg Ser Gln Asn Leu
65 70 75

ggg ttg aga aac tcg ttg gat tgt aac ggc gtt cga gac gga gaa ttc 349
Gly Leu Arg Asn Ser Leu Asp Cys Asn Gly Val Arg Asp Gly Glu Phe
80 85 90

gat gag att aat cgg gtc ggg tta cag ggt ttg ggt ttg gat ctg aac 397
Asp Glu Ile Asn Arg Val Gly Leu Gln Gly Leu Gly Leu Asp Leu Asn
95 100 105 110

tgt aaa ccg gaa cca gac agc gtt agt tta tcg ttg tagacttgta 443
Cys Lys Pro Glu Pro Asp Ser Val Ser Leu Ser Leu
115 120

gtccttcatg tttttcccct tcttacaata atcaattttt ttttaactac aatacttttg 503

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<213> Arabidopsis thaliana

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Val Thr Glu Glu Glu Val Asp Glu Phe Phe Lys Ile Leu Arg Arg Val
35 40 45

His Val Ala Thr Arg Thr Val Ala Lys Val Asn Gly Gly Val Ala Glu
50 55 60

Gly Glu Leu Pro Ser Lys Lys Arg Lys Arg Ser Gln Asn Leu Gly Leu
65 70 75 80

Arg Asn Ser Leu Asp Cys Asn Gly Val Arg Asp Gly Glu Phe Asp Glu
85 90 95

Ile Asn Arg Val Gly Leu Gln Gly Leu Gly Leu Asp Leu Asn Cys Lys

100 105 110

Pro Glu Pro Asp Ser Val Ser Leu Ser Leu
115 120

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<222> (646)..(665)
<223> CAMV AS1 salicylic acid response element

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<222> (707)..(712)
<223> PAL BOX

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<223> HEXAMERAT 4 element

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ttaaaatcag acatttgttt taaaatcaaa tctaatctct tatatcacaa cgacattgac 180
ggaaaattca ggtaaaaaga gaaaataaag aatgagagat agagagattt ctatggaaaa 240
agaaagagag aacatgtagg tgaacaaaat aaagagatat gatgatatat tttatgagag 300
gtggtgaaga ttattttagg agagggagag agaaatagaa aaagaaaatg acatggtgaa 360

tctgaagaag atgaattgtg ttaaagatga agagagaaag agaactccat ggctaaagtc 420
tcgtaaagaa gatgaaaaag aaacaaaaga aggaagaaga aagagaaagg ctaaaataga 480
ctaactattg ccaaaatttc tgtagccgac aaatactatt tggtccaagg ttattttgtg 540
tattcttttg aagtcaaaag ttatttctta catatactct aaaaatatag ccgataccaa 600
tttttccaca catggacttc ctttattcca aaagtcaata aagtgtgacg tcatgatact 660
tacgctttaa aacatcgcat gatgatgtca ttagcatcaa tctccaccgt ccaatttatt 720
tagttgttga caatatcgac cgtctaagtt ccacaccgac ggctataaga gtttcattat 780
aaattttagc aaaataaaat cagcaaataa ttttttcttg actaagctta aacgacgccg 840
ttaacatttt cttctggcta acatgaacaa ctctttgaag aaagaagaac gcgtagaaga 900
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<213> Solanum tuberosum

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tgagagaata aagagaagta attgcactag cagtattgac aattaatcag ctagccggct 120

tga atg cta ctt atg gac gga gaa aag aag agg aag aga aca gca atc 168
Met Leu Leu Met Asp Gly Glu Lys Lys Arg Lys Arg Thr Ala Ile
1 5 10 15

ggc gcc gga gat cgg agt aag gat gag gta gaa gct act gtg aag gag 216
Gly Ala Gly Asp Arg Ser Lys Asp Glu Val Glu Ala Thr Val Lys Glu
20 25 30

gag gag ccg ccg tca gag gcg gag gtt gac gag ttc ttc gcg atc tta 264
Glu Glu Pro Pro Ser Glu Ala Glu Val Asp Glu Phe Phe Ala Ile Leu
35 40 45

cgg agg atg cat gtg gcg gtg aaa tat ctc cag aga aat gct cag att 312
Arg Arg Met His Val Ala Val Lys Tyr Leu Gln Arg Asn Ala Gln Ile
50 55 60

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cgg ccg gaa aac ctt aac gca tcg ccg gcc ggt gct aac ggt gtc gca   360
Arg Pro Glu Asn Leu Asn Ala Ser Pro Ala Gly Ala Asn Gly Val Ala
     65                  70                  75

gct gga cgg aag aga gaa cgg gga atc gtg aga aaa ggt gat ttg gac   408
Ala Gly Arg Lys Arg Glu Arg Gly Ile Val Arg Lys Gly Asp Leu Asp
 80                  85                  90                  95

ctc aac act ctg ccg gac ggc gga gac taa ttaacgcagt ttaagcatag     458
Leu Asn Thr Leu Pro Asp Gly Gly Asp
                100                 105

gttaattaca taaatgcacc cttaattatc gtagattctt aagattgatc tgctgtacag 518

attaattaat taaagccttt ttttatatat atttctccgg taaacggttt gctctttgtg 578

attttcttta ataaatttaa tttattttat                                  608
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Date Recue/Date Received 2020-12-14

<210> 5
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             20                  25                  30
Glu Pro Pro Ser Glu Ala Glu Val Asp Glu Phe Phe Ala Ile Leu Arg
         35                  40                  45
Arg Met His Val Ala Val Lys Tyr Leu Gln Arg Asn Ala Gln Ile Arg
     50                  55                  60
Pro Glu Asn Leu Asn Ala Ser Pro Ala Gly Ala Asn Gly Val Ala Ala
 65                  70                  75                  80
Gly Arg Lys Arg Glu Arg Gly Ile Val Arg Lys Gly Asp Leu Asp Leu
                 85                  90                  95
Asn Thr Leu Pro Asp Gly Gly Asp
            100
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<210> 6
<211> 349
<212> DNA
<213> Lycopersicon esculentum

<220>
<221> CDS
<222> (3)..(233)

<400> 6

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     1               5                  10                  15

cac atg gcc gta aaa tat ctt cag aga aac gct cag att cag ccg gaa    95
His Met Ala Val Lys Tyr Leu Gln Arg Asn Ala Gln Ile Gln Pro Glu
                20                  25                  30

aac gtt aac gct cac ggc agc aag tta acc gca tcg ccg gcc ggt gtt    143
Asn Val Asn Ala His Gly Ser Lys Leu Thr Ala Ser Pro Ala Gly Val
            35                  40                  45

aac gga gat gca act gga cag aag aga gaa cgg gga atc gtg aga aaa    191
Asn Gly Asp Ala Thr Gly Gln Lys Arg Glu Arg Gly Ile Val Arg Lys
        50                  55                  60

ggt gat ttg gac ctc aac act ttg ccg gac tgc gga gac taa            233
Gly Asp Leu Asp Leu Asn Thr Leu Pro Asp Cys Gly Asp
    65                  70                  75

cgcagtttaa gcataggtta attacagaaa tgcaccttta attatcgtag attcttaaga 293

ttgatctgct gtacaaatta attaaatgaa gccttttttt atatataaaa aaaaaa     349


<210> 7
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<212> PRT
<213> Lycopersicon esculentum

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Met Ala Val Lys Tyr Leu Gln Arg Asn Ala Gln Ile Gln Pro Glu Asn
            20                  25                  30
Val Asn Ala His Gly Ser Lys Leu Thr Ala Ser Pro Ala Gly Val Asn
        35                  40                  45
Gly Asp Ala Thr Gly Gln Lys Arg Glu Arg Gly Ile Val Arg Lys Gly
    50                  55                  60
Asp Leu Asp Leu Asn Thr Leu Pro Asp Cys Gly Asp
 65                  70                  75


<210> 8
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<213> Glycine max

<400> 8
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 1               5                  10                  15

Glu Ser Glu Arg Val Lys Asn Lys Arg Leu Lys Gly Val Glu Glu Glu
            20                  25                  30
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Asp Gly Ser Asp Gly Val Pro Thr Glu Glu Glu Val Glu Glu Phe Phe
         35                  40                  45

Ala Ile Leu Arg Arg Met Arg Met Ala Val Lys Tyr Phe Asp Asp Lys
     50                  55                  60

Gly Arg Gly Gly Arg Glu Trp Arg Glu Ala Leu
 65                  70                  75


<210> 9
<211> 90
<212> PRT
<213> Glycine max

<400> 9
Gly Gly Val Pro Thr Glu Glu Glu Val Glu Glu Phe Phe Ala Ile Leu
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Arg Arg Met Arg Val Ala Val Lys Tyr Phe Asp Asp Lys Gly Ser Gly
             20                  25                  30

Gly Lys Glu Trp Arg Lys Ala Leu Glu Thr Ala Glu Leu Thr Val Asp
         35                  40                  45

His Arg His Asp Val Val Ala Ala Glu Glu Asp Asp Lys Pro Arg Lys
     50                  55                  60

Lys Gly Gly Glu Val Ile Ile Asn Glu Gly Phe Asp Leu Asn Ala Val
 65                  70                  75                  80

Ala Pro Glu Ala Ala Glu Gly Gly Gly Ala
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<213> Nicotiana tabacum

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Gly Gly Asp Arg Asn Arg His Glu Arg Lys Ser Ala Ala Asn Glu His
             20                  25                  30

Thr Ala Val Ser Pro Pro Pro Ser Glu Ala Glu Val Asp Glu Phe Phe
         35                  40                  45

Ala Ile Leu Arg Arg Met His Val Ala Val Arg Tyr Leu Gln Glu Ser
     50                  55                  60
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Gly Gln Lys Arg Val Val Pro Lys Gly Asp Leu Asp Leu Asn Thr Leu
65 70 75 80

Pro Gly Asn Gly Asp
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NIM3'SalI

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<223> NI19

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gaa gaa aag atg gag aag ttg tac aca gtg ctt aaa aac gca agg gaa       96
Glu Glu Lys Met Glu Lys Leu Tyr Thr Val Leu Lys Asn Ala Arg Glu
            20                  25                  30

atg cgg aaa tat gtc aac agc tcc atg gag aag aag aga cag gaa gaa      144
Met Arg Lys Tyr Val Asn Ser Ser Met Glu Lys Lys Arg Gln Glu Glu
        35                  40                  45

gaa gaa aga gca agg gtt cgt aga ttc cct tcg ttt cag cca gaa gat      192
Glu Glu Arg Ala Arg Val Arg Arg Phe Pro Ser Phe Gln Pro Glu Asp
    50                  55                  60

ttc att ttc atg aat aaa gca gag gcc aac aac att gaa aaa gca gct      240
Phe Ile Phe Met Asn Lys Ala Glu Ala Asn Asn Ile Glu Lys Ala Ala
65                  70                  75                  80

aat gag agc tct tca gca tcc aac gag tat gat ggc tct aag gaa aag      288
Asn Glu Ser Ser Ser Ala Ser Asn Glu Tyr Asp Gly Ser Lys Glu Lys
                85                  90                  95

caa gaa gga tct gag act aac gtt tgt tta gac ttg aat ctt tct ctg      336
Gln Glu Gly Ser Glu Thr Asn Val Cys Leu Asp Leu Asn Leu Ser Leu
            100                 105                 110

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gttagtaact acgtacc                                                  413
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<210> 23
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<400> 23

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            20                  25                  30

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        35                  40                  45

Glu Glu Arg Ala Arg Val Arg Arg Phe Pro Ser Phe Gln Pro Glu Asp
    50                  55                  60
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Phe Ile Phe Met Asn Lys Ala Glu Ala Asn Asn Ile Glu Lys Ala Ala
65                  70                  75                  80

Asn Glu Ser Ser Ser Ala Ser Asn Glu Tyr Asp Gly Ser Lys Glu Lys
                85                  90                  95

Gln Glu Gly Ser Glu Thr Asn Val Cys Leu Asp Leu Asn Leu Ser Leu
            100                 105                 110
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